Chapter 1
Purpose of Document

Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution is a holistic approach to controlling and cleaning up nonpoint source pollution. The last plan of this sort was completed in 1987. Since that time, numerous new programs have been developed and implemented, leading to many successful on-the-ground efforts. This update to the 1987 plan incorporates those changes and looks forward to further program improvements for the next five and 10-year horizons.

Ecology's Water Quality program is the designated lead in developing this plan. The plan must describe the State's nonpoint source program, which loosely includes all nonpoint efforts by federal, state, tribal, and local governments as well as volunteer programs carried out by the general public. To compile this information and evaluate the needs has been a monumental endeavor, partly due to the incredible depth and diversity of work that is underway. The landscape of nonpoint initiatives has changed dramatically throughout the period of preparation, especially as the State wrestles with the needs of protecting and restoring salmon runs. The authors hope they have captured the major efforts and have left an open door to further program adjustments and improvements as time goes on.

In a broad sense, this plan has two purposes. The first is to meet federal mandates. Washington is required to update its Nonpoint Source Management Plan so it can continue to receive grant funds under Section 319 of the Clean Water Act and Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Guidance from the Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) was used to evaluate current nonpoint source efforts and determine where program upgrades were needed.

The second purpose of the document is to assess the particular needs of the state regarding nonpoint source pollution. The federal requirements discussed above apply to all states and therefore are general in nature. Several issues related to nonpoint source pollution control are unique to the Northwest states, especially salmon habitat and shellfish production. This plan looks specifically at the additional needs of protecting unique Northwest resources.

The plan is composed of two major sections. Chapters 1 through 7 analyze the existing programs and authorities in the state. Chapters 8 through 13 set direction for the future and focus on how we improve program effectiveness. A schedule for implementation of new actions is established in Chapter 9. This is backed up with concurrence agreements from most of the implementing entities.

Background

The 1996 <u>Report on Water Quality in Washington State</u> (Department of Ecology Publication #WQ-96-04) reports only 22 percent of the problems in our streams that don't meet water quality standards could be traced to "point" sources. Most of the polluted streams are impacted by "nonpoint" sources. Nonpoint pollutants are introduced into water through runoff. Rainfall and snow melt wash pollutants from the land into rivers, streams, lakes, oceans, and underground aquifers. Land use is strongly correlated to nonpoint pollution. Therefore, to manage nonpoint pollution, we must focus on land use activities.

The intensity of environmental impact from each land use differs. For example, urban districts making up about two percent of the land base are generally under the highest environmental stress. Park areas, with far more land area in the state, experience very little impact. Agricultural and forestry land uses account for approximately 90 percent of land in the state, giving the appearance that the pollution from these sources is consistent and well-defined. However, nonpoint source problems associated with these two land uses vary from none to very extensive.

The following land uses predominate in Washington State:

Figure 1.1
Land Use in Washington
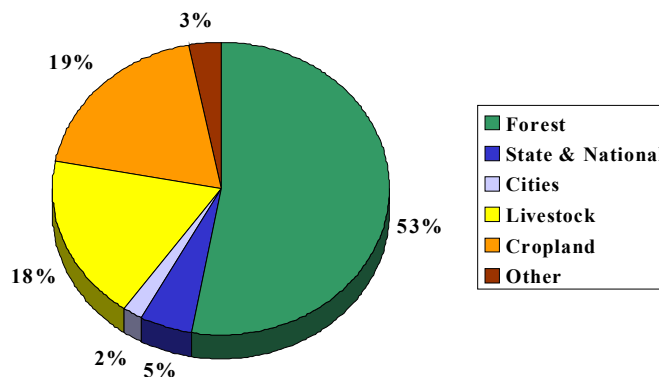
(Sources: Agricultural Statistics Service; Department of Natural Resources; Office of Financial Management)

The major sources of nonpoint pollution can be divided into the following categories:

Category	Types of Sources in Categories
Agriculture	Livestock; Dryland; Irrigated; Non-commercial agriculture
Forest Practices	Road Construction and Maintenance; Harvesting; Chemical Applications
Urban Areas	Stormwater; On-site Sewage Systems; Hazardous Materials, Construction and Maintenance of Roads and Bridges
Recreation	Marinas and Boats; Parks; Off-Road Vehicles; Shoreline Uses
Hydromodification	Stream Channelization, Dikes, Dredging, Riprap, and Dams
Loss of Aquatic Ecosystems Areas;	Filling of Wetlands and Alteration of Riparian Shoreline Development

The primary water pollution problems in Washington are high temperature, pathogens, pH, low dissolved oxygen, metals, and nutrients. Most of these problems are caused by nonpoint source pollution. Nonpoint pollution is the primary concern in rivers, lakes and ground water, but point sources of pollution are still the predominate source of estuary pollution.

The use impairments noted above are the actual land use activities that are degrading the streams to the point where they cannot provide the desired benefits to the community. Impacts from these pollutants have been felt throughout the ecosystems in the state. A few key resources have been put at special risk from nonpoint activities:

- **Salmon and other fish habitat:** High temperatures and low dissolved oxygen interfere with the normal life cycles of fish. Pathogens and toxics can harm the fish and/or render them unsafe to eat. Some toxics can bio-accumulate: concentrations in tissue increase as you go up the food chain. Sedimentation and other forms of habitat alteration can destroy spawning areas and limit opportunities for food. Reduced instream flow can eliminate habitat and contribute to high water temperature and low dissolved oxygen.

High temperature from removal of riparian shade	Agriculture, forestry, urban development
Bank erosion from animal access	Agriculture
Coarse sediment from landslides	Forestry
Fine sediment from road and surface erosion	Agriculture, forestry, urban development, recreation
Lack of large organic debris from removal of riparian vegetation	Forestry, agriculture, urban development
Reduced instream flow from over-allocation and impervious surfaces	Urban development
Bulkheads and other shoreline construction and habitat alteration	Shoreline development

- **Shellfish Growing Areas:** Shellfish are susceptible to the same pollutants as fish, including sedimentation. Over 46,000 acres of key shellfish growing areas in Washington have been closed or restricted for harvesting due to contamination since 1981. Beaches in the metropolitan areas were closed as early as the 1950's. These closures and restrictions have been on commercial and recreational areas.

Fecal contamination from animal access in tributaries and lack of proper manure management	Agriculture
Fecal contamination from failing on-site sewage systems	Suburban development
Fecal contamination from stormwater runoff in suburban areas	Suburban development
Fecal contamination from overboard discharges of sewage from boats without holding tanks and lack of adequate pumpout facilities	Recreation
Fecal contamination from increased recreational use with inadequate facilities	Recreation
Fecal contamination from wildlife	General

- **Drinking Water/Ground Water:** Many nonpoint pollutants will eventually leach into ground water. This hazard is especially important because 70 percent of the state's drinking water comes from ground water.

Elevated nitrates from inappropriate use of animal waste, and fertilizers	Agriculture
Contamination from use of pesticides	Agriculture, Urban and Suburban development
Nutrients and fecal coliform from failing on-site sewage systems	Suburban development
Elevated chlorides, nitrates, coliform from the management of commercial and urban stormwater through underground injection	Suburban

Other resources impacted by nonpoint pollution which will be discussed throughout this document include impacts on wetlands, riparian areas, and marine waters.

Table 1.1
Sources of Pollution by Land Use Activities

Nonpoint Source	Nitrogen	Fecal coliform	Sediments	pH	Dissolved oxygen	Pesticides	Flow	Temperature
Agriculture								
Animal Feeding Operations	x	x	x	x	x			
Dryland	x		x			x		x
Irrigation	x		x	x	x	x	x	x
Noncommercial	x	x	x					x
Forest Practices								
Road construction			x			x	x	x
Timber harvesting			x				x	x
Reforestation	x					x		x
Urban/Rural								
Construction			x					x
On-site sewage systems	x	x		x	x			
Stormwater runoff	x		x	x		x	x	x
Hydromodification								
Channelization			x		x		x	x
Dams			x		x		x	x
Wetlands and riparian areas								
Vegetative clearing			x		x	x	x	x

Draining of wetlands	x		x				x	x
Recreation								
Marinas and boats	x	x	x	x	x			
Off-road		x	x					
Hiking, fishing		x						

As the table indicates, many sources of pollution contribute similar pollutant types. For example, fecal coliform is generated through agricultural practices, stormwater runoff, on-site sewage systems, and recreation. The cumulative effects of these many sources of fecal coliform can be devastating to the receiving waters and ecological systems that rely on those waters.

Nonpoint pollution is generally regarded as a land use issue. Since a pollutant can be generated from several sources, the management, treatment, and enforcement to control nonpoint pollution are extremely difficult and complex. Chapter 5 contains a thorough discussion of these land use activities and an analysis of current programs to control nonpoint sources of pollution.

Federal and State Requirements

The development of this strategy is timely for several reasons. New emphasis has been given to controlling nonpoint sources of pollution. This is particularly true at the federal level where the 1998 President's Clean Water Action Plan calls for rigorous management of nonpoint pollution. Here in Washington State, the Salmon Recovery Act identifies nonpoint source pollution as a primary target if recovery is to succeed.

Two processes have driven the need to develop this strategy: the federal mandates and the listings of salmon as an endangered species.

Federal Mandates

The planning provisions of Section 6217 of the federal Coastal Zone Act Reauthorization Amendments (CZARA) require states with coastal areas to develop and implement comprehensive nonpoint source programs in those areas. The objective of the Coastal Zone Management Plan is to significantly improve water quality by providing the best possible alternatives to those who implement nonpoint source programs.

The planning provisions of Section 319 of the federal Clean Water Act (CWA) also require states to develop comprehensive nonpoint source control programs. Under Section 319, states must develop a plan to address nonpoint pollution and work with local communities to implement it. As a result, states receive federal funding to help local governments solve nonpoint pollution problems.

There is one major distinction between the requirements of CWA and CZARA regarding nonpoint. The assumption of CWA is that the plan will cover the entire state and programs therein will be implemented across the state as needed. CZARA only covers "the coastal nonpoint area" also called the "6217 management area". Under CZARA, states are required to establish this area, based on guidance from NOAA and EPA. In previous submission of the state's CZARA plan in 1995 and 1996, the coastal zone was defined as 15 counties in Western Washington: Clallam, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston, and Whatcom in the Puget Sound region and Grays Harbor, Lewis, Pacific, and Wahkiakum along the Pacific Coast. This designation will remain essentially the same, except it will be based on the WRIAs rather than the counties. Thus, the 6217 management area is comprised of WRIAs 1 - 24.

Figure 1.2
Coastal Nonpoint Management Area
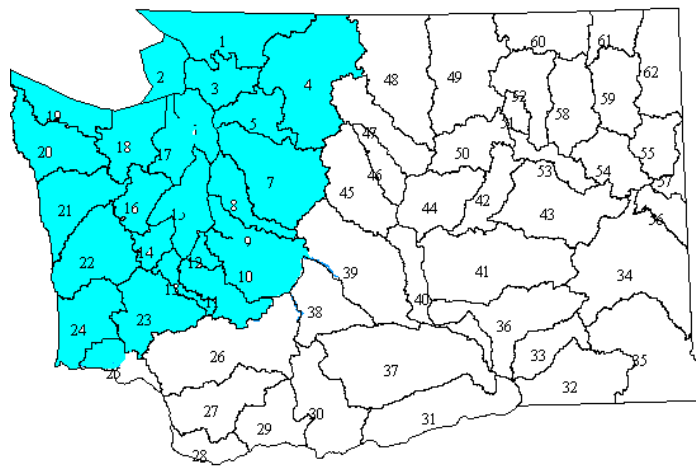
Although not a requirement for the creation of this document, Section 320 of the Federal Clean Water Act created the National Estuary Program. The EPA subsequently adopted the Puget Sound Plan as a Comprehensive Conservation and Management Plan for the Puget Sound Estuary. The Puget Sound Plan strives to control nonpoint sources of pollution. The Lower Columbia River Estuary Program recently completed a management plan that calls for additional control of nonpoint sources of pollution.

State Mandates

In 1998, the Washington State Legislature enacted two sweeping measures. The Watershed Planning Act establishes a framework to identify and rectify problems with water quantity, water quality, and aquatic habitat. The Salmon Recovery Act establishes a salmon recovery office with the Governor's Office to coordinate efforts within the state to restore salmon habitat and fisheries. These planning processes identified nonpoint

source pollution as one of the primary causes of impairment of water quality and salmon habitat.

Ecology has responsibility for water quality under CWA and Washington's Water Pollution Control Act (chapter 90.48 RCW). However, this analysis of water quality issues in Washington indicated that nonpoint source control is largely a local land use issue, with the exception of forest practices. Ecology's ability to compel other government entities to initiate and manage programs for nonpoint pollution control is limited. Therefore, Ecology must heavily rely on voluntary programs and locally-driven efforts to meet water quality objectives.

The Puget Sound Action Team (formerly the Puget Sound Water Quality Authority) was created by RCW 90.71. The PSAT is responsible for program planning and overseeing implementation of the Puget Sound Plan. The Puget Sound Plan has focused attention on nonpoint pollution. The plan has also been responsible for state initiatives for upgrading local on-site sewage programs, for anticipating and responding to closure of shellfish beds, for supporting local development of nonpoint watershed action plans, and for guiding and supporting development of local stormwater programs.

The Growth Management Act (GMA) RCW 36.70A) provides legislative direction to local governments requiring them to protect critical areas. These include aquifer recharge areas, frequently flooded areas, and fish and wildlife conservation areas. Washington State requires local governments to develop policies and regulations ensuring the designation and protection of critical areas. The GMA also requires demonstration of water availability before issuing development permits.

Relationships between agencies, tribes, and key local counterparts need considerable strengthening if water quality is to improve. It is clear that the magnitude of the nonpoint source problem in Washington is larger than any one entity can handle alone. Much more can be accomplished by coordinating and cooperating with other agencies, helping people acknowledge ownership and solve local problems, and leveraging local energy and resources to reduce pollution. The building of this document did much to coordinate and improve those relationships.

What Happens Next

Several management changes will take place because of this effort:

Increased Coordination and Communication:

Many nonpoint source efforts by Ecology and other agencies are driven by complaints and enforcement actions. These actions have been most effective when coordinated with local agencies and special districts, especially conservation districts. For this aspect of the state's nonpoint program to be successful, working relationships between the state and local levels will need improvement.

Increased Monitoring and Education

In this management plan, we cite examples of current efforts to control nonpoint sources that have resulted in documented water quality improvements. In many cases, public awareness has been raised through watershed efforts, and cooperation is continuing to increase. However, in most cases, actual measurable water quality improvement has not been achieved on a watershed level.

Adaptive Management

The plan calls for yearly progress reports from implementing agencies. The purpose of the reports is to determine if water quality has improved through the actions identified in this document. Every five years the state needs to do an assessment of this nonpoint program and determine if changes are necessary. The five year review, coupled with the progress reports, will help us determine necessary changes. In this regard, being open to adaptive management is a hallmark of this effort.